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Federal Nutritional Guidance and the Politics of Science: A Tale of Regulatory Capture

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ABSTRACT

This paper examines US government involvement in nutrition and agriculture. Specifically, it attempts to explain the existence of conflicting information presented by scientific versus government sources in the food pyramid. We start by examining the theory of the politicization of science and regulatory capture. We then examine federal nutrition advice through this theoretical framework. The paper concludes that the negative consequences of federal intervention for everyday Americans call for an alternative approach of decentralization, with an emphasis on private regulators, with government sticking to its core functions, rather than engaging in politicized favoritism.

***JEL** Classification Codes: H40, I18, Q18*

***Keyword**s: cronyism; regulatory capture; nutritional guidance; public information; agricultural policy*

1 Introduction

Since the US Department of Agriculture started giving food advice in 1943, both the official guidance and the underlying science have evolved significantly. But there are often conflicts between the two. Indeed, there exists an honest disagreement over the science, as indicated by various non-government food pyramids (see section II.2 below). But the formal adoption process of the government pyramid indicates that government advice is more deeply influenced by industry lobbying and political jockeying, rather than science and the public interest.

While individuals remain responsible for their own choices, information and availability of healthy foods do play a critical role in the decisions of individuals. Alas, the nutritional guidance from the federal government has changed so much over the years, that it has lost credibility (for a history, see Archer *et al*. 2007; for a critique, see Scheall *et al*. forthcoming). Taubes (2007), for example, describes the shift, based on dodgy science, over the decades, from blaming carbohydrates for obesity and heart disease… to blaming fat… and back to blaming carbohydrates. In that same period of time, "the incidence of obesity among adults over the age of 20 has more than double, from 13.4 to 35.7 percent. The figures for younger Americans are little better… These changes corresponded with a decrease in the percentage of fat… in the American diet, and an uptick in the consumption of carbohydrates" (ibid, 232-233).

The shaky science foundations are matched by other political contradictions: "US public policy encourages obesity at the expense of sound nutritional practices" (Fields 2004). This is particularly the case for subsidized sweeteners from corn (high-fructose corn syrup, or HFCS), hydrogenated fats from soybeans, and feed for cattle and pigs; this, "in turn, drives down the prices of fattening fare such as prepackaged snacks, ready-to-eat meals, fast food, corn-fed beef and pork, and soft drinks" (op. cit). What is more, "corn-fed cattle require more antibiotics and their beef has a higher fat content." All of this is especially troubling, if one considers that roughly half of US expenses on healthcare comes from various government programs. Thus, the US government is simultaneously (a) subsidizing foods that cause disease, and (b) subsidizing treatment of the same diseases.

Nestle (2007) provides a superb history of the food pyramid politics, but her lack of a rigorous analytical framework leads her to call for *more* government intervention to fix the problem of regulatory capture; likewise, Archer *et al*. (2017) document the history and problem of federal nutritional guidance, but limit themselves to a gentle conclusion: that federal nutritional guidance was based on "biased, implausible anecdotal evidence and that rigorous contrary research and the diversity of expert opinions on diet–health relationships were ignored. Scheall et al (forthcoming) apply a model of politicized science to the narrow case of carbohydrates v. fat described in Taubes (2007). We build upon Scheall et al. to apply a theory of scientific distortion and regulatory capture to federal nutritional guidance, more broadly.

Section 1 outlines the politicization of science and regulatory capture. Section 2 specifically examines federal nutrition advice through this theoretical framework. The final section concludes.

2 When Science Meets Politics[1]

2.1 Distorting the Process of Scientific Discovery

In this section, we build on the model of science as a complex phenomenon of feedback loops and self-correction, proposed by Scheall *et al*. forthcoming (as well as earlier work by Butos and McQuade 2012 and 2006). Because human knowledge is limited, institutions that create and transmit knowledge are of great importance (see Hayek 1960). The market is one such institution, as it gathers the preferences and abilities of consumers, and feeds them into the market process, thus aggregating preferences and sharing information. The profit and loss mechanism actualizes this information, as entrepreneurs receive feedback about the value they are adding (or not) for consumers. Prices thus have an epistemic function, as they guide the actions of consumers and entrepreneurs by giving them relevant information (Horwitz 2000). Beyond basic microeconomics, price controls and other interventions are distortionary, because they break the process of communication and coordination (Mises 1979). Scientific knowledge emerges in a manner similar to economic knowledge (see Kuhn 1962), through the "Publication-Citation-Reputation" (PCR) process of discovery and correction (Butos and McQuade 2012; see also Butos and McQuade 2006):

[1] This section draws from Mussler and Wenzel (2020).

> Scientists publish speculations and observations; other scientists who find these useful to their own work (or who wish to criticize them) cite them; the citation feeds back to affect the reputation of the publishing scientist; and a scientist's reputation not only affects the notice given to his future publications and citations but also his ability to attract funding or to advance in academic positions. This recursive set of procedures and feedback loops, hereafter referred to as "PCR" (for "Publication-Citation-Reputation"), implements the knowledge-generating characteristics of the scientific order.

The presence of a big player can distort the discovery process (see Koppl 2002). Specifically, the big player (especially one that grants subsidies) can influence the emphasis on research in some areas, to the detriment of others. It can destabilize the feedback and correction mechanism by favoring one particular area of inquiry or set of results. And it can generally distort the knowledge creation and correction process by putting its proverbial thumb on the scale through funding guidelines and grants – or, in the case of government, pushing a certain agenda through regulatory action and congressional oversight. Consider, then, the fact that the federal government today funds more than 50% of basic research in the US (Butos and McQuade 2006; see also Butos and McQuade 2012). Many will claim that this simply solves a market failure. Their argument is that everybody benefits from science, but nobody has an interest in funding basic research, because it's difficult or impossible to capture the rewards – so there won't be enough basic research unless the government steps in. We counter that government funding of science is problematic for three significant reasons: first, for the general distortionary effects just discussed; second, because this means that research priorities (and perhaps even results) are driven largely by politics, rather than science; and third, because this research is simply *assumed* to be neutral (rather than tainted by industry interests).[2]

Butos and McQuade (2012) offer a taxonomy to analyze the process by which the scientific process responds to funding, and the problems that arise with centralization of. They differentiate among three effects of spending on science: direction, destabilization, and distortion. As we will see, the first two are not problematic, regardless of the source of funding – because science is a self-correcting process of discovery. The third distortion, however, is problematic because it can break the very PCR process of self-correction.

2.1.1 The Direction of Scientific Funding

Funding affects the direction of science: "directional effects are treated here as outcomes which result from changes in the amount and focus of funding but which do not induce any changes in the PCR processes and which therefore do not result in the production of invalid science" (Butos and McQuade 2012). Any funder of science, whether government, industry, or non-profit, will have spending priorities. Some areas of science will receive more funding than others (especially if the priorities are set politically, rather than scientifically – that is, if the government emerges as a big player in science funding). But the scientific process itself will not be broken (on the unintended consequences of politicized science, see Kealy 1996).

2.1.2 Destabilizing Scientific Inquiry

Funding affects the stability of scientific inquiry, as priorities shift. Butos and McQuade (2012) explain that "in a funding regime of a small number of large funding sources, the shifting priorities of the funding institution may result in a phenomenon of 'boom and bust' within scientific disciplines. The boom is initiated as generous funding policies make funding more generally available and easier to obtain, and as 'popularity' (for both real and political reasons) of a particular subdiscipline makes funding for that subdiscipline easier to get." This means that research will often progress in cycles; in the boom phase, "research projects that under earlier funding conditions would not have been attempted are now able to be funded." Later, "the bust will come when it becomes apparent that many of the research projects in the subdiscipline enjoying the boom cannot be completed, either because, due to a shift in funding priorities, the funding for the projects is scaled back or terminated before the projects are completed, or because reality manifests itself in the form of lack of experimental validation." Just as with the directional effect, the shift in funding priorities for a big player will affect scientific research, but there is no effect on the process of scientific inquiry.

[2] Of course, a private company could temporarily emerge as a big player, with distortionary effects. However, (a) markets are more dynamic than governments; and (b) private entities do not have the image of legitimacy enjoyed by the federal government. Given basic transparency, consumers would be wary of nutrition sponsored by agribusiness, in a way they wouldn't about research sponsored by agribusiness through the state.

Butos and McQuade 2012 give two short examples where government funding influenced the direction and stability of scientific research, but did not distort it. In the wake of the 1957 Sputnik launch, the US shifted national research priorities to "physics, mathematics, astronautics, and space science research" – but "interest and funding fell markedly" after the moon landings. Likewise, in the 1980s, in response to a perceived Japanese threat, the US government doubled funding for computer science (and especially AI), only to shift its attention elsewhere when the Japanese project failed and commercial computers surpassed government capabilities.

2.1.3 Distorting Scientific Inquiry

Finally, "distorting effects are those effects which work to impair or circumvent those evolved institutions fundamental to science's functioning as an adaptive classifying system. When the procedures and feedback loops crucial for the long run viability and robustness of science are bypassed or impaired, the functioning of the scientific order becomes maladaptive to science's normal environment and the so-called knowledge generated in these conditions is tainted, if not totally invalid" (Butos and McQuade 2012). Note that this distortionary capacity does not include fraud in scientific research; indeed, as long as the PCR process is functioning, fraud will be both deterred and corrected. The real, systemic, problem is "the potential for distortion that derives from pressures external to science – in particular those inherent in the characteristics of the funders and the degree of decentralization of the funding environment. In an environment composed of many funders, the effectiveness of the any single one to interfere with the PCR processes and their operation is likely to be small. They lack the ability to impose their will on a significant segment of the scientific order" (ibid).

Beyond the theory, government funding has caused the predicted distortions in climate science, while compromising the objectivity of research (Butos and McQuade 2015; see also Wojick and Michaels 2015). The presence of government as a big player has led to politicization of science, and quashing of dissent. Those who question climate change, or accept it but question its anthropogenic roots, are ridiculed, isolated, fired, or poo-pooed as "deniers" (see Michaels and Knappenberger 2016 or Michaels and Balling 2010). The point here is not whether climate change exists, or if it's anthropogenic – that is for scientists (and the PCR process!) to decide. The point is that the debate is one-sided, and dissent is not treated scientifically, but politically. One can hardly imagine a physicist being fired or ridiculed for advancing the theory that the Higgs boson doesn't exist… or being disparaged as a "Higgs boson denier." As an illustration of the overwhelming weight of government, Oreskes and Conway (2010) point to corporate-funded attempts to disprove the thesis of anthropogenic climate change. Without the funding weight and, or the imprimatur of (claimed) public interest, they were ultimately unsuccessful at quashing dissent in the marketplace of ideas – unlike the government, which has successfully done so by shutting down that market through its "big player" status. Similarly, White (2005) finds that 74% of academic articles on monetary policy, published in 2002 by US-based economists, appeared in journals published by the US Federal Reserve, or were co-authored by a Fed economist." This leads to a status quo bias, in what Milton Friedman had earlier called "a sort of oligopoly on monetary opinion" by the Fed and its affiliates (Fettig 1993). White (2005) concludes that "Fed-sponsored research generally adheres to a high level of scholarship, but it does not follow that institutional bias is absent or that the appropriate level of scrutiny is zero." It is not surprising, then, that mainstream economists rarely question the fundamentals of central banking and monetary intervention (Ebelling 1978, Boettke and Smith 2016), and that both popular and political opinion ignored the role of the Fed in causing (or exacerbating) the Great Financial Crisis of 2007 through loose monetary policy (Horwitz and Boettke 2008; Mussler and Wenzel 2020). Taubes (2007, 51-52) describes the presence of government as big player in the carbohydrate versus fate debate:

> Scientists were believed to be free of conflicts if their only source of funding was a federal agency, but all nutritionists knew if their research failed to support the government position on a particular subject, the funding would go instead to someone whose research did. The NIH [National Institutes of Health] panels that decide funding represent the orthodoxy and will tend to perceive research interpreted in a contrarian manner as unworthy of funding.

Butos and McQuade (2012) conclude that the government presents one more problem, beyond being a big player:

> Concentration of the funding environment is not the only characteristic of public funding with distortion potential. Government funding of science comes equipped with political or even constitutional prerogatives for overseeing science not available to private funders, and these are ordinarily justified as providing the oversight and accountability taxpayers sometimes expect from

> government. The use of regulatory vehicles (with access to an arsenal of resources – staff, lawyers, and raw political muscle), such as Congressional hearings and access to media outlets can, whether intentionally or not, exert an influence [on] scientists' scientific reputations for good or ill, and can lead to the circumvention of standard evaluative procedures and criteria used to review and ascertain the publication worthiness of scientific work. There is a clear sense, then, in which the simple expedient of government funding science may generate incompatibilities with the institutions of science.

2.2 Regulatory Capture

Stigler (1971) wrote the ground-breaking "theory of economic regulation." He outlines both sides of the market for regulation. On the demand side, industries seek privileges from the state. On the supply side, politicians and regulators are pleased to provide the service – at a cost, i.e. campaign contributions and votes. Stigler outlines three categories of benefits that the state can provide to industry: (1) outright subsidies; (2) barriers to entry; and (3) price controls. Stigler outlines the details of the market for regulation, showing the extent to which we can expect regulation, depending on particular circumstances such as industry income, size, elasticity of supply, geographical concentration, etc. McChesney (1987) complements Stigler's theory, by explaining the phenomena of both rent-creation (for the benefit of industry, with a corollary benefit to the regulators who provide it), and rent-extraction (whereby politicians can extract resources from industry by threatening regulations). Similarly, Engstrom (2012) defines the process of regulatory capture as "a process by which policy is directed away from the public interest and towards the interests of a regulated industry." Interestingly, something so obvious dismissed in the theory of market failure and government correction? (See Samuelson 1954; see also Leighton and Lopez 2012 for a history). Engrstrom (2012) explains that "virtually any policy can be framed in public interest terms." And 50 years ago, Stigler (1971) warned against the "idealistic view of public regulation [that] is deeply imbedded in professional and economic thought."

More recent literature distinguishes between material and non-material regulatory capture (Kwak 2014). We have already examined material capture, whereby lobbyists extract financial benefits from the regulatory apparatus. Non-material capture can take three forms: (1) information capture; (2) cultural capture; and (3) discovery capture.

Information capture is rather straightforward. Simply, lobbyists take advantage of the administrative law requirement that agencies consider all submissions, by inundating regulators with complex information to influence regulatory outcomes (see Kwak 2014 or Wagner 2010). Groups that stand to receive a concentrated benefit (producers) are in a position to coordinate vast sums to produce information, relative to those who bear the diffuse costs (consumers).

Cultural capture – also referred to as cognitive or social capture – occurs when a regulatory agency interacts with industry more as a partner, rather than as a regulator. Regulators start seeing the world through the eyes of the regulated entity, thus using public means to advance private preferences. Kwak (2014) explains that this can happen through group identification, status, or relationship networks, especially in a world of "revolving doors." As a simple example, just between 2009 and 2010, 148 former employees of financial regulatory agencies registered as lobbyists representing that very industry (Kwak 2014). Likewise, the same individual person has gone back and forth over the past 30 years between posts as a government regulator of food safety, and as an attorney, or lobbyist for Monsanto (a company best known for its genetically modified organisms, or GMOs). or as a lobbyist or attorney for Monsanto. From FDA Deputy Commissioner for Policy and USDA Administrator of the Food Safety & Inspection Service, he became Vice President for Public Policy at Monsanto, then FDA Deputy Commissioner for Foods. The point here is not whether GMOs are healthy (a question we economists leave to scientists) – but that public "virtue" and private "vice" are highly unlikely to be well-delineated in revolving door environments (see Lewis 2013, especially chapters 8-11).

Discovery capture – the capture of the deeper processes of knowledge discovery – is more complex than informational and cultural capture. It is essentially the broader expansion of the distortion of the scientific discovery process described above.

2.3 Political Science and Regulatory Capture

Public Choice theory teaches us that there are fundamental interests being pursued when anything is politically driven. Science is valued for its commitment to objectivity and rigorous processeses of discovery and falsifiability – but government-funded science will inevitably be politically biased. In short, while government-funded research is justified as a value-neutral countervailing force to corporate-

funded research, this is very unlikely to be true. It is naïve simply to assume that government-funded science is any more neutral or less neutral than any other funded science. All science is funded somehow, but once dispersion and diversity in sources of funding disappear, the "big player" problem overtakes nearly all other considerations. More important, then, is the likelihood that government-funded science will not serve the public interest but will serve the interests of the politicians or the lobbyists who sponsor it. Consider two examples. First, the science has yet to be fully settled on GMOs.[3] Yet, "the FDA tries to remain as silent as possible about GMOs [and] the US Department of Agriculture and other parts of the US government are doing everything they can to promote them" (Lewis 2013, 118). In addition, GMO companies were able to slip a rider into the 2013 House Agricultural Appropriations bill, "stripping federal courts of the authority to halt the sale or sowing of GMO crops while USDA undertakes an environmental assessment" (ibid, 120). Second, Williams (2012) explains that "the biggest problem… is the misconception that the federal government is the sole source of assurance of safe food…. New regulations pile on top of old ones. The government has no ability to enforce them, yet regulations give consumers the illusion of control." This sentiment is echoed by a former member of the US Food and Nutrition Board, who explained that "The US government is as big of a pusher as industry. If you say what the government says, then it's okay. If you say something that isn't what the government says, or that be parallel to what industry says, that makes you suspect" (in Butos and McQuade 2012).

Again, the fundamental problem boils down to the widespread assumption of governmental neutrality. Coca-Cola has funded research downplaying the link between sugar and obesity.[4] An automobile manufacturer might fund research on the impact of tariffs on foreign cars for the US economy as a whole. In such cases, the results will be considered with healthy skepticism. But if the federal government funds or publishes research, readers will naively assume that the research is unbiased, untainted by influence, and a reflection of the public interest.

3 Capturing Science: The Case of Federal Nutrition Advice

We now apply the framework of political capture of science to the case of federal nutrition advice.

3.1 Some Background: Food Politics[5]

The agricultural sector is not the biggest lobbyist (that place is held by the financial industry), but it is one of the top 10, as measured by political donations.[6] As of 2015, agribusiness contributed about $133 million to the political process, within the overall $3.22 billion in lobbying for that year.[7] The US Department of Agriculture – the primary government player in food politics – faces a dual mandate of protecting agricultural producers and protecting the interests of consumers. There is clearly tension between the two; the US Department of Agriculture tends to favor those who make the most political donations or stand to offer the best employment terms to former elected officials and bureaucrats who will use the revolving door. In the end, these agents, under the guise of public service, have a strong incentive to favor industry interests over consumer interests.

Here are some of the actions taken by those in public service that favor agribusiness:

- $13.7 billion in 2014 agricultural subsidies, including $42.5 million for conservation, $29 million for disaster assistance, $183 million for commodity subsidies, and $67.6 million in crop insurance[8]
- Over the past decade, almost $250 billion on farm income stabilization and agricultural research and services[9].
- $3 million (2007-2011) "to 2,300 farms where no crop of any sort was grown"[10]

[3] As economists, we cannot assess the scientific status of GMOs. We can, however, comment on the process of scientific discovery.

[4] "How the Sugar Industry Shifted Blame to Fat," by A. O'Connor, *The New York Times*, September 12, 2016, http://nyti.ms/2cynHOS. See also O'Keefe et al. 2016 and, generally, Taubes

[5] I borrow this section title from Nestle's (2007) overview.

[6] www.opensecrets.org/overview/sectors.php

[7] http://opensecrets.org/lobby/indus.php&id-A7year=2015. http://opensecrets.org/lobby/. For a general history, and a good overview of food politics, see Nestle (2007, especially chapter 4)

[8] https://farm.ewg.org/regionsummary.php?fips=00000&regionname=theUnitedStates

[9] https://fraser.stlouisfed.org/title/383/item/492445. Office of Management and Budget, 2016 Historical Tables Table 3.2 – Outlays by Superfunction and Function: 1940-2020 Line 350 – Agriculture.

[10] http://www.economist.com/news/united-states/21643191-crop-prices-fall-farmers-grow-subsidies-instead-milking-taxpayers

- Mandatory consumer-financed marketing, to the tune of roughly $1.2 billion/year.[11] (Compare this to the annual advertising budget of the food industry of $136 million.)[12]
- Significant influence (and occasional veto power) over federal dietary guidelines
- Critics point to cronyism in the marking of food safety regulations from the Food and Drug Administration (FDA). Williams (2012) explains that "instead of developing and complementing systems that hold firms accountable for problems *ex post* (i.e., after the fact), government remains fixated with a more *ex ante* (i.e., before an event) approach: "command and control." These systems are 'comfortable' for incumbent industries that routinely lobby for more regulation and larger budgets for the agencies."
- The most recent update of food safety regulations, the Food Safety Management Act of 2011, places a disproportionate burden on small farmers. According to FDA estimates, compliance costs will be 6% of average annual gross sales for very small farms, 4% for small farms, and only 1% of average annual gross sales for large farms.[13] This is not surprising, if we consider that funding for the FDA comes from the agricultural subcommittees of both the House and Senate appropriations committees.

3.2 Putting It All Together: The Food Pyramid

Information and discovery regulatory capture are obvious in the case of US dietary guidelines (for a full history, see Archer *et al*. 2018). Nestle (2007, 30) states it bluntly: "dietary guidelines necessarily are political compromises between what science tells us about nutrition and health versus what is good for the food industry."[14] From the initial 1968 congressional hearings on the subject, federal dietary guidelines have involved regulatory capture (Nestle 2007, 38-50 and chapter 2). Early on, agribusiness was opposed to the emerging scientific consensus about decreasing overall caloric intake, as well as caloric intake from animal fats specifically. The USDA's first "food pyramid" of dietary guidelines, in 1991, was surrounded by industry disapproval. Within two weeks of its release in April 1991, the first food pyramid was retracted by USDA, because of agribusiness disapproval. Leading the charge, the meat and dairy lobbies objected to what they perceived as a governmental campaign to encourage consumers to eat less of their products (Nestle 2007, 53-61). In 1992, "a year and a day and $855,000 after the announcement of [the 1991 pyramid's] withdrawal" (ibid, 63), the USDA released its revised food pyramid. Nestle explains what could be perceived as a tempest in a teacup (ibid, 63-64):

> The new version differed from the [original] in at least 33 ways, most of them utterly trivial. Two, however, were not. The term "Eating Right" had been changed to "Food Guide" in response to complaints from Kraft Foods (owned by Philip Morris) that the title infringed on its copyrighted line of prepared meals, and to complaints from ConAgra that the Pyramid might give Kraft a marketing advantage. The most important change was also designed to appease food producers. The numbers of recommended servings had been moved outside the design and set in boldface type to suggest that the diet should include *at least* 2-3 servings of meat and dairy foods each day. This change implied an increase in servings from the [1958] *Basic Four* [guidelines]. Ironically, given who had registered the most complaints, the Pyramid had increased the upper range of the meat allowance. It specified that the two servings should be "the equivalent of 5 to 7 ounces of cooked lean meat" rather than the 4-6 ounces suggested in the *Basic Four* guide."

The 1992 food pyramid was revised in 2005 to feature vertical wedges – Nestle (2007, 62) suggests this came about because meat and dairy producers prefer a vertical shape that suggests greater equivalence among food groups. In 2011, the food pyramid was replaced by a food plate, featuring four roughly equivalent quadrants, with fruit and vegetables composing half the space, and grains and protein the other half; dairy is in a separate circle (presumably a glass).

The current food guidelines are problematic for several reasons:

- They do not reflect the central piece of dietary advice in an advanced industrial country, viz. "eat less" overall – which is ferociously opposed by agribusiness (Nestle 2007, 77)
- The guidelines do not differentiate between complex and simple carbohydrates, or between whole grains and refined grains[15]

[11] This includes all marketing activities by the USDA's Agricultural Marketing Service, http://www.obpa.usda.gov/budsum/fy16budsum.pdf

[12] For 2015; https://www.statista.com/topics/2223/food-advertising/

[13] http://sustainableagriculture.net/fsma/learn-about-the-issues/costs-to-farmers-and-consumers-produce-rule/

[14] See also Scrinis 2013; on food labeling politics, see Frohlich 2016. On "scientific advice as performance," i.e. the presentation of scientific information on the public stage, see Hilgartner 2000.

[15] See, e.g., www.nutritionmd.org

- The food plate says nothing of fats, and the food pyramid (which does recommend fats be consumed sparingly) does not mention that most fat intake comes from dairy and meat (which have their own categories)
- The food guidelines do not differentiate among saturated fats, unsaturated fats, and trans fats – there is still scientific debate on this, but there are recent concerns among nutrition scientists that trans fats (rather than the previous benchmark, saturated fats) are the greatest contributors to heart disease[16]

Beyond the practical health concerns, the food guidelines are also problematic for epistemic reasons (leave it to economist to worry about theory over health!). Science, properly carried out, is a complex emergent phenomenon of feedback loops and self-correction. As explained above, when a big player is present – especially one with the size and moral imprimatur of government – it will likely distort the process of scientific discovery. Since the congressional hearings of 1968, the government has "turned a scientific question into a political one" (Butos and McQuade 2012): what is healthy, and what isn't? Despite disagreements among nutritionists – specifically over the fat v. carbohydrate fight – what has emerged is a "quasi-official government stance and popularly accepted belief that [has] legitimated the basic contention of a controversial scientific and clinical take on dietary issues." In the 1980s, the National Institutes of Health "simply announced that such a consensus did exist": fat is the main culprit for fundamental chronic illnesses associated with poor nutritional choices (Butos and McQuade 2012). Although the dietary guidelines have received the government's imprimatur, controversy continues. Taubes (2007) explains how carbohydrates may indeed be more problematic than fat.[17]

The problem here is not that the government provides one of many competing pyramids – after all, competition, is healthy, and disagreement is a part of the scientific process. The problem is that government's imprimatur makes it seem to consumers that its word is final. Three competing pyramids[18] – from respected scientific sources – offer information that conflicts with official government advice:

- The University of Michigan proposes a complex pyramid of 11 categories, with abundant fruits, vegetables, grains and legumes, and limited "healthy fats," dairy, eggs, fish and seafood, and "lean meats."
- The Harvard School of Public Health proposes a "Healthy Eating Plate" that is composed half of fruits and vegetables (like the federal plate), and half of "whole grains" and "healthy proteins," with limited dairy.
- The Center for Science in the Public Interest suggests 11 daily servings of vegetable and fruit (to the USDA's 5-9), only 4 servings of grain (versus 6-11), 2 servings of dairy (versus 2-3) and only one of meat (versus 2-3), with a higher fat and sugar intake (2 each daily versus the USDA pyramid's "sparingly" advice).

Despite the existence of competing food guidelines, the government's advice prevails – back to the "misconception that the federal government is the sole source of assurance" (Williams 2012).

As noted earlier, our expertise (as economists) is not nutrition – and this is not a scientific paper on nutrition. However, economics provides significant insights into the *process* of knowledge generation. In this case, we identify a structural conflict between federal advice and other credible sources of nutrition advice. In the marketplace of ideas (and in the scientific process), conflicting ideas are commonplace and healthy. But federal guidelines have the imprimatur of the state and create ossification and distortion of the scientific discovery processes themselves. Returning to Nestle's (2007, 30) lament that "dietary guidelines necessarily are political compromises between what science tells us about nutrition and health versus what is good for the food industry," we have to ask why science should be a *political* compromise in the first place.

[16] "The FDA's Phony Nutrition Science: How Big Food and Agriculture Trumps Real Science – and Why the Government Allows It," *Salon*, April 12, 2015, http://salon.com/2015/04/12/the_fdas_phony_nutrition_science_how_big_food_and_agriculture_trumps_real_science_and_why_the_government_allows_it/

[17].

[18] We could broaden this study by examining the internationalization of food pyramids; see Scheall *et al*. (forthcoming).

4 Conclusion

As we have seen, the government has failed to provide unbiased, scientific nutritional information, and it is simultaneously thwarting the process of scientific discovery.

Fortunately, information *can* effectively and efficiently be provided by private sources, without the dangers associated with the big player of government, and the imprimatur placed on one set of information, which is decidedly *not* neutral. This has been the case in fields where the market is allowed to function, so we can anticipate the same would hold for nutrition. Hayek (1948, 97), describes the alternative, market solution:

> In actual life the fact that our inadequate knowledge of the available commodities or services is made up for by our experience with the persons or firms supplying them – that competition is in a large measure competition for reputation or good will – is one of the most important facts which enables us to solve our daily problems. The function of competition is here precisely to teach us who will serve us well: which grocer or travel agency, which department store or hotel, which doctor or solicitor, we can expect to provide the most satisfactory solution for whatever particular personal problem we may have to face.

Klein (2002) likewise admonishes us that "intellectuals, commentators, and regulators working on quality and safety regulation should seriously consider how resourceful middlemen, expert knowers, trustworthy promisers, and wary trusters find ways to overcome virtually any of the supposed failures of the free enterprise system. The demand for assurance brings forth a supply of assurance."

Indeed, we routinely see markets generating information on consumer goods: Underwriters Laboratory or Consumer Reports for product safety; Green Seal or Eco-Rating International for environmental friendliness; religious authorities for Halal and Kosher food; the Internet Highway Parental Empowerment Group, the Platform for Internet Content Selection, SafeSurf or the Recreational Software Advisory Council for protecting children on the internet; a bevy of investment advisors and financial analysis agencies;[19] the network of Better Business Bureaus and Consumers Union for consumer protection; or the myriad informal internet-based rating systems, from Uber driver ratings to Yelp or Urban Spoon, and the ubiquitous online review. For details and analysis, see Yilmaz (1998).

In addition to such private regulatory agencies, we also see a strong history of non-regulatory legal mechanisms to protect consumers (that is, until the rise of the regulatory state in the US, and a shift from common law to administrative law and rule by regulation). As an example, see Meiners and Yandle (1998) for a case study on the use of non-regulatory means (property rights and tort law) to prevent environmental damage without problems of regulatory capture or rent-seeking. Returning to nutrition, Williams (2012) explains the emergence of private solutions for food safety inspections, where government could not keep up with the evolving knowledge:

> Because of this growth in complexity in food manufacturing, the Food and Drug Administration (FDA) in particular finds it increasingly difficult to have the necessary knowledge to meaningfully regulate food processing and packaging. Private inspections take place on a more frequent basis than even a combination of federal and state regulators could achieve with a realistic amount of public resources. In addition, thousands of new private [food safety] firms are now providing food manufacturers with both expert advice and third-party inspections. This new system will not eliminate all foodborne disease — pathogens are ubiquitous; new foods, equipment, and technologies are evolving — but constant and continuous monitoring can reduce illness.

The same could apply to nutrition advice, if the distortionary big player is removed, and ceases its distortion of the scientific process. The negative consequences of cronyism are numerous, and cronyism nakedly advances the interests of concentrated benefits with diffuse costs. We would do well by not doing "good" and by exploring alternatives to a system that is clearly infused with cronyism and the mutual patronage which accompanies it. Our health – and a non-insignificant portion of US GDP, given public involvement in the provision of health care – depend on it.

[19] Before their advice was corrupted by cronyism (see White 2010).

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